

DIFFERENTIAL DENSE WAVELENGTH DIVISION MULTIPLEXING (DDWDM) IN OPTICAL SYSTEMS

Abstract of Disclosure

An apparatus provides an optical wavelength division multiplexed signal having $2M$ optical channels such that each of M information-bearing signals are differentially encoded onto 2 of the $2M$ optical channels. In particular, the apparatus comprises M inverters, $2M$ electrical-to-optical converters and a multiplexer. Each electrical-to-optical converter provides an optical signal at a different one of $2M$ wavelengths. The apparatus receives the M information-bearing signals and (a) creates M optical signals, each at a different wavelength, by converting each of the M information bearing signals into the optical domain via M of the $2M$ electrical-to-optical converters, and (b) creates M inverted optical signals, each at a different wavelength, by first inverting each of the M information bearing signals (via the M inverters) before conversion into the optical domain via the remaining M electrical-to-optical converters. The M optical signals along with the M inverted optical signals are then applied to the multiplexer, which provides an optical wavelength division multiplexed (WDM) signal having $2M$ channels.

Figures

Figure 1: A vertical list of text fragments, likely a table of contents or index, showing page numbers and corresponding text. The fragments are: "Figure 1", "Figure 2", "Figure 3", "Figure 4", "Figure 5", "Figure 6", "Figure 7", "Figure 8", "Figure 9", "Figure 10", "Figure 11", "Figure 12", "Figure 13", "Figure 14", "Figure 15", "Figure 16", "Figure 17", "Figure 18", "Figure 19", "Figure 20", "Figure 21", "Figure 22", "Figure 23", "Figure 24", "Figure 25", "Figure 26", "Figure 27", "Figure 28", "Figure 29", "Figure 30", "Figure 31", "Figure 32", "Figure 33", "Figure 34", "Figure 35", "Figure 36", "Figure 37", "Figure 38", "Figure 39", "Figure 40", "Figure 41", "Figure 42", "Figure 43", "Figure 44", "Figure 45", "Figure 46", "Figure 47", "Figure 48", "Figure 49", "Figure 50", "Figure 51", "Figure 52", "Figure 53", "Figure 54", "Figure 55", "Figure 56", "Figure 57", "Figure 58", "Figure 59", "Figure 60", "Figure 61", "Figure 62", "Figure 63", "Figure 64", "Figure 65", "Figure 66", "Figure 67", "Figure 68", "Figure 69", "Figure 70", "Figure 71", "Figure 72", "Figure 73", "Figure 74", "Figure 75", "Figure 76", "Figure 77", "Figure 78", "Figure 79", "Figure 80", "Figure 81", "Figure 82", "Figure 83", "Figure 84", "Figure 85", "Figure 86", "Figure 87", "Figure 88", "Figure 89", "Figure 90", "Figure 91", "Figure 92", "Figure 93", "Figure 94", "Figure 95", "Figure 96", "Figure 97", "Figure 98", "Figure 99", "Figure 100".